RUI CHEN

Curriculum Vitae ♢ Personal Website: https://ruichen.pub/ ♢ richen@umich.edu · ruichen2@andrew.cmu.edu

EDUCATION

M.S. in Electrical and Computer Engineering / Robotics, CV Sep. 2017 - Dec. 2018
Rackham Graduate School. CGPA: 3.96/4.00
The University of Michigan, Ann Arbor.

B.S. in Computer Engineering Sep. 2013 - May 2017
Joint-Institute, College of Engineering. Dual-Degree Program. CGPA: 3.75/4.00
Shanghai Jiao Tong University, Shanghai, China - University of Michigan, Ann Arbor, U.S.

SKILLS AND INTERESTS

Interests	Meta Learning, Inverse Reinforcement Learning, Computer Vision, Reinforcement Learning, Deep Learning, Probabilistic Robotics.
Application	Human-Robot Interaction, Autonomous Vehicles, Manufacturing.
Skills	PCL, Cuda, Polysync, ROS, Tensorflow, RTOS, Embedded Systems, Electronics Design, Computer Networks, Distributed/Parallel Computing.
Software	Unreal Engine 4 (Editor & C++ Programming), Blender, AutoCAD, Sketchup.
Languages	C/C++, Python, Matlab, Arduino.

PUBLICATION

X. Chen, **R. Chen**, Z. Sui, Z. Ye, Y. Liu, R. I. Bahar, and O.C.Jenkins, "GRIP: generative robust inference and perception for semantic robot manipulation in adversarial environments", in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019. Available: https://arxiv.org/abs/1903.08352

R. Chen, W. Wang, Z. Zhao, and D. Zhao, "Active Learning for Risk-Sensitive Inverse Reinforcement Learning", *International Conference on Robotics and Automation (ICRA) (In Review)*, 2020. Available: https://arxiv.org/abs/1909.07843

R. Chen, M. Arief, and D. Zhao, "How to Evaluate Self-Driving Testing Ground? A Quantitative Approach", *IEEE Transactions on Intelligent Transportation Systems (T-ITS) (In Review)*, 2019. Available: https://arxiv.org/abs/1909.09079

COMMUNITY CONTRIBUTION

1 paper review for *International Conference on Robotics and Automation (ICRA)*, 2020

RESEARCH

Meta Imitation Learning for Human-Robot Collaboration Sep 2019 - Present
Intelligent Control Lab, Robotics Institute *Carnegie Mellon University, Pittsburgh*

· Meta-learned one-shot imitation model for fast adaptation to unseen human-robot collaboration tasks.

Active Learning for Risk-Sensitive Inverse Reinforcement Learning June 2019 - Sep 2019
Safe AI Lab, Mechanical Engineering *Carnegie Mellon University, Pittsburgh*

· Active demonstration querying for faster human risk envelope approximation via disturbance planning.
· Experimental verification in single-step and multi-step setting with simulated car-following task in Carla.

Generative Robust Inference and Perception in Adversarial Environments Sep 2018 - March 2019
Lab 4Progress, Department of EECS *University of Michigan, Ann Arbor*

· First stage Pyramid CNN provides prior knowledge on object labels, locations and aspect ratios.
· Second stage particle filter searches in 6D space with feature-based likelihood function.

Evaluation of CAV testing grounds via generative sample-based optimization April 2019 - Sep 2019
Safe AI Lab, Mechanical Engineering *Carnegie Mellon University, Pittsburgh*

· Evaluating testing capability based on utility of V2V interaction scenarios within testing ground road map.
· Estimating spatial compatibility of traffic encounter primitives via iterated likelihood weighting.

PROJECTS

Automatic driving scenario generator from OSM data in Carla April 2018 - Aug. 2018

· An automatic map and route generator from OSM data for testing self-driving algorithms in Carla.

Lincoln MKZ on-track testing with simulated traffic scenarios Jan. 2018 - May 2018
Mcity *Ann Arbor*

· Fully automated and remotely controllable testing, result reporting, parameter updating, and position reset cycle.
· Virtual dynamic road users challenging real autonomous vehicle in Mcity.

Surface normal prediction from single color image March 2018 - April 2018

· Surface normal estimation from single color image using stacked hourglass model.

Particle filter SLAM on mobile bot with RPLIDAR November 2017 - Dec. 2017

· Sensor fusing, pose interpolation, particle filtering, occupancy grid.

Autonomous Self-balancing robot October 2017 - November 2017

· Path planning and following using Potential Field Method with Optitrack motion capture system.

RGBD-based object manipulation using a 6-DOF robotic arm Sep. 2017 - October 2017

· 6D block pose estimation and color classification followed by block stacking and organizing.

POSITIONS OF RESPONSIBILITY

Research Assistant @Intelligent Control Lab, Robotics Institute, CMU Sep. 2019 - Present
Research Assistant @Safe AI Lab, Mechanical Engineering, CMU Feb. 2019 - Sep. 2019
Research Assistant @Lab 4Progress, The University of Michigan, Ann Arbor Sep. 2018 - Feb. 2019
Research Assistant @Mcity, Ann Arbor Jan. 2018 - June 2018
Software Intern @NVIDIA, San Jose May 2016 - July 2016
Teaching & Lab Assistant @UM-SJTU, Shanghai Jiao Tong University, Shanghai March 2015 - July 2016

AWARDS AND HONORS

University Honors, University of Michigan Dec. 2015, April 2016, April 2017
Dean's List, University of Michigan Dec. 2015, April 2016, Dec. 2016, April 2017
Excellent assistant class advisor, Shanghai Jiao Tong University Aug. 2015
Academic Excellence Scholarship, Shanghai Jiao Tong University Dec. 2014
Dean's List, Shanghai Jiao Tong University April 2013, April 2014